



TECHNOLOGY TRANSFER

from
Office of Research and Development
Office of Technology Transfer & Regulatory Support

New Technology Transfer Publications

[use form in back to order]

Approaches for Remediation of Uncontrolled Wood Preserving Sites (625/7-90/011)

This document provides an overview of the process of remediation of uncontrolled wood preserving sites. It is, in part, a distillation of discussions that took place at a Forum on Wood Preserving Waste held in San Francisco, California, in October 1988. Information from this workshop has been updated to reflect more recent technological advances.

Two important elements of the wood preserving remediation process are emphasized in this document: 1) site specific factors and 2) multiple technology utilization. Greater emphasis is placed on the treatment of soils rather than ground-water treatment and containment mechanisms.

Radon-Resistant Construction Techniques for New Residential Construction: Technical Guidance (625/ 2-91/032)

Growing concern about the risks posed by indoor radon has underscored the need for dependable radon-resistant residential construction techniques. The U.S. Environmental Protection Agency has responded to this public health concern by developing and demonstrating a variety of methods to reduce radon in existing houses. Many of these methods could be applied during construction, involve reduced labor and financial investments, and provide greater homeowner satisfaction and safety than a radon-reduction technique installed after the home is built and occupied.

Some of the techniques mentioned in this manual have not been demonstrated fully in

new home construction. However, the soil ventilation techniques described have been extensively tested in existing homes and show good potential for application in new construction.

This manual provides a basic understanding of the types of products and systems that are available and being used to reduce radon concentrations indoors. The reader will be able to select radon-resistant products and systems that will be most applicable to a particular situation. EPA's intent is not to rate similar products made by different manufacturers or to provide a stock radon-resistant package.

Revised: Handbook: Ground Water - Volume I: Ground Water and Contamination (625/6-90/016a)

The Ground Water Handbook, originally published in 1987 as EPA/625/6-87/016, has been revised and will be available in two volumes. Volume I, entitled *Ground Water and Contamination* is available as EPA/625/6-90/016a. It will be followed by Volume II, *Methodology*. Although extensively revised, Volume I was obtained from previous publications, *Handbook: Ground Water* (referenced above) and *Protection of Public Water Supplies from Ground-Water Contamination* (out of print).

Volume I includes: 1) Basic Geology, 2) Classification of Ground-Water Regions, 3) Ground Water-Surface Water Relationship, 4) Basic Hydrogeology, 5) Ground-Water Contamination, 6) Ground-Water Investigations, and 7) Ground-Water Restoration.

Optimizing Water Treatment Plant Performance Using the Composite Correction Program Approach (625/6- 91/027)

This handbook is an interim version of a document for improving the performance of

existing surface water treatment plants to achieve compliance with the Surface Water Treatment Rule (SWTR) using conventional and direct filtration unit processes. It addresses the turbidity and disinfection requirements of the SWTR and presents procedures for assessing a plant's ability to achieve the 0.5 NTU turbidity requirement. Though the handbook is not primarily designed to describe cost saving options or as an alternative to designing new facilities for expansion purposes, in some cases the approach described may result in cost savings and increased capacity.

In the Composite Correction Program (CCP) approach, a logical and systematic evaluation of a water treatment facility is made to identify the unique combination of factors limiting performance. Once elements affecting a plant's performance have been identified, a program may be initiated to address these findings and assist the community in using its existing major unit processes to achieve the desired finished water quality. Twenty-two programs have been completed to date and are described in case studies. Many communities, especially small ones, are now considering either constructing new facilities or modifying existing ones to meet drinking water regulations. The CCP approach may enable communities to meet regulatory requirements by implementing changes in their operational, maintenance or administrative procedures. Often these operational-type changes will be less costly and easier to implement than major capital improvements.

This handbook was prepared by EPA's Offices of Drinking Water and Technology Transfer and Regulatory Support. EPA Region VIII, along with the states of Kentucky, Montana, Maryland, Ohio, Pennsylvania, Vermont, West Virginia, and Wisconsin, assisted in developing the necessary information for the handbook and in reviewing draft materials.

Future Technology Transfer Meetings

Remedial Approaches for Sites with Contaminated Sediments

Several uncontrolled hazardous waste sites have contaminated sediment problems. A number of proven and many new and unique methods of sampling, treating, and disposing of dredged

contaminated sediments have been developed and implemented. This one and a half-day seminar series presents detailed information on sediment clean-up standards and disposal alternatives, with specific emphasis on treatment technologies. The series will focus on the kinds of small scale contaminant problems found in streams, lakes, bayous, and rivers, as opposed to the larger problems found in harbors. It will also emphasize sediment removal and treatment methods as opposed to sediment criteria assessment. The seminar is designed for individuals with responsibilities for the management of contaminated sediments.

Seminar attendees will be provided a handbook and other related material on remedial approaches for contaminated sediments.

Dates and locations of the seminar are as follows:

- June 18-19, 1991 - Atlanta, GA
- June 20-21, 1991 - Philadelphia, PA
- July 10-11, 1991 - San Francisco, CA
- July 30-31, 1991 - Chicago, IL
- Aug. 1-2, 1991 - Kansas City, MO.

For registration information, contact Barb Morris at 615-688-0998. For information on content, contact Ed Barth at 513-569-7669 (FTS 684-7669).

Sewer System Infrastructure Analysis and Rehabilitation

The sewer systems of many municipalities are in need of maintenance/repair/replacement for one or more of several reasons:

- Structural damage due to the effects of corrosion
- Greatly increased flows caused by infiltration/inflow
- High exfiltration

Municipalities must expend large amounts of funds to maintain their sewer systems, often much more than the cost of associated treatment facilities. They must use the most effective methods available to both minimize the amount of money spent and ensure that their sewer system remains capable of handling existing and future loadings.

CERI will conduct a series of 2-day seminars this summer to disseminate the latest available methods to: 1) evaluate the condition of an existing municipal sewer system and 2) replace or repair those portions of the sewer system

requiring work. The seminars will incorporate the latest techniques available to evaluate and maintain sewer systems. A new Technology Transfer handbook will form the basis for the technical content of the seminars.

The dates and locations of the seminars are as follows:

- July 15-16, 1991 - Baltimore, MD
- July 18-19, 1991 - Chicago, IL
- Aug. 5-6, 1991 - San Diego, CA
- Aug. 8-9, 1991 - New Orleans, LA
- Aug. 19-20, 1991 - Seattle, WA
- Aug. 22-23, 1991 - San Francisco, CA
- Nov. 18-19, 1991 - Boston, MA
- Nov. 21-22, 1991 - Tampa, FL

Those interested in registering should contact Trisha Hasch at 617-641-5321. For content, contact Denis Lussier at 513-569-7354 (FTS 684-7354).

Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells

This series will assist personnel involved in the design, construction, and installation of ground-water monitoring wells. Presentations will focus on state-of-the-art technology that can be applied in diverse hydrogeologic situations. Information will be provided on field-oriented practices to solve monitoring well construction problems rather than conceptual or idealized practices.

Seminar topics will range from initial planning for a monitoring well to abandonment. Factors influencing monitoring well design and installation will include: purpose, location, site hydrogeology, contaminant characteristics, anthropogenic activities, and testing equipment that the well must accommodate. Other considerations to be discussed include decontamination procedures, recordkeeping from well installation through sampling to abandonment, drilling and formation sampling techniques, method selection, materials, completion and development, and maintenance procedures.

Five, two-day seminars will be presented in the following locations:

- Atlanta, GA, July 9-10, 1991
- Denver, CO, July 23-24, 1991
- Chicago, IL, Aug. 6-7, 1991
- Worcester, MA, Aug. 21-22, 1991
- Seattle, WA, Sept. 12-13, 1991

For registration, contact Trisha Hasch at 617-641-5321. For content, contact Carol Grove at 513-569-7362 (FTS 684-7362).

Workshops on Risk Assessment, Communication, and Management of Drinking Water Contamination

These workshops update, improve upon, and continue a very successful program that was started five years ago. They are typically sponsored by a local section of the American Water Works Association in cooperation with the local environmental health association and/or state water supply program, a local university and EPA's Regional Office and Offices of Drinking Water and Technology Transfer and Regulatory Support. The program provides uniform and consistent approaches and processes nationwide for officials involved in determining, communicating about, and managing drinking water contamination incidents. Lecture topics include information on health effects of contaminants, an approach to risk assessment, risk communication, and abatement of lead, biological contaminations, particulates, organics, and radon; as well as corrosion control. Current regulatory initiatives are discussed along with an update of the Office of Drinking Water's Health Advisory Program. Each workshop attendee participates in a hands-on case study that illustrates the elements of risk assessment, communication, and management.

Other topics may be included upon request by a program sponsor; e.g., "Recognizing and Controlling Biofilms in the Distribution System."

Participants who can benefit from attending this program include regional, state, and local drinking water regulatory personnel who work in the health and technology areas related to constructing new or upgrading existing drinking water treatment facilities or who must respond to contamination incidents. The program should also be of interest to consultants and drinking water utility staff actively engaged in the design, operation and/or upgrading of their treatment systems.

Two workshops are presently scheduled. The first will be held May 7-9, 1991, in Alexandria, Louisiana, and includes an extra day to discuss biofilm control. The second workshop will be held in conjunction with the national meeting of the National Environmental Health Association (NEHA) in Portland, Oregon, June 22-27, 1991. It will be a two-day post-conference workshop held June 27-28, 1991.

For registration and content information, contact Jim Smith at 513-569-7355 (FTS 684-7355).

National Conference on Control of Lead in Drinking Water

Lead is one of the drinking water contaminants of special concern to EPA. The primary source of lead in drinking water is corrosion of plumbing materials, such as lead service lines and lead in solders and fixtures, in water distribution systems and in houses and larger buildings. Virtually all public water systems serve households with lead solders of varying ages, and most faucets are made of materials that can contribute some lead to drinking water.

The health effects of lead are serious and can lead to impaired blood formation, brain damage, increased blood pressure, premature birth, low birth weight, and nervous system disorders. Young children are especially at risk from high levels of lead in drinking water. In response to these concerns, EPA has proposed a more restrictive MCL for lead in drinking water at the tap. The proposed rule also includes public notification requirements. Research has been aimed at determining the best available technologies for lead control in drinking water. Questions remain about how large and small treatment plants can meet the proposed MCL.

To publicize information on lead control in drinking water, the American Water Works Association and EPA's Offices of Water and Research and Development will sponsor a national conference in Chicago, Illinois, September 24-26, 1991. The conference will consist of a general session for 300-500 people, which will include state and local decision-makers, water treatment plant personnel, engineers, and consultants.

The meeting will review health concerns and the extent of the problem; regulatory issues, including EPA's proposed MCL for lead; sampling and analytical protocols and methods; and potential solutions to the problem, including short-term control measures, corrosion control, removal technologies, and point-of-use/point-of-entry devices. The final day will be devoted to case studies that cite success stories at both large and small drinking water systems with varying water quality.

For registration and content information, contact Jim Smith at 513-569-7355 (FTS 684-7355).

AWWA National Meeting and Convention

The EPA's Offices of Technology Transfer and Regulatory Support (OTTRS) and Drinking Water (ODW) will again cooperate in an exhibit at the June 23-27, 1991, American Water Works Association National Meeting in Philadelphia, Pennsylvania. Approximately 11,000 state and utility personnel along with consultants, manufacturers and academicians attend this meeting.

As part of the exhibit, OTTRS and ODW will display and make available to participants publications pertinent to the Agency's Drinking Water Program.

Testing Methods Demonstrated on Videotapes

The Center for Environmental Research Information (CERI) in cooperation with EPA's Environmental Research Laboratory in Narragansett, Rhode Island (ERL-Narragansett), has produced three videotapes that demonstrate marine and estuarine toxicity testing methods. The videotapes are entitled "Sheepshead Minnow and Inland Silverside Survival and Growth Toxicity Tests," "Sperm Cell Test Using the Sea Urchin *Arbacia punctulata*," and "Red Algal Sexual Reproduction Test." These marine and estuarine toxicity testing methods developed by ERL-Narragansett were adapted from similar methods developed for freshwater by EPA's Environmental Research Laboratory in Duluth, Minnesota.

The testing procedures demonstrated in these videotapes measure the effects of complex marine and estuarine effluents on the larval survival and growth of the sheepshead minnow *Cyprinodon variegatus* and the inland silverside *Menidia beryllina* and on the sexual reproduction of the marine macroalga *Champia parvula*. They also estimate the chronic toxicity of marine and estuarine effluents and receiving waters on the gametes of the sea urchin *Arbacia punctulata*.

The three videotapes, along with three supplemental reports and the EPA methods manual entitled *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* are

available only from the National Audiovisual Center. The complete set of videotapes and documents can be obtained by ordering *EPA Culturing and Toxicity Test Methods for Marine and Estuarine Effluents* (Order #A18545). The cost of the complete video package is \$85.00. For additional information or to order the videotapes, contact the:

National Audiovisual Center
Attn: Customer Services Section
8700 Edgeworth Drive
Capitol Heights, MD 20743-3701
Telephone: 301-763-1896

New Emission Factors and Inventories Branch

Developing good estimates for the source and quantity of a given pollutant being emitted has always been a key to determining proper controls and program emphasis. The Clean Air Act Amendments increase the need for emission factors and inventories, both for criteria pollutants and air toxics. Consequently, a new Emission Inventory Branch has been established in the Technical Support Division (TSD) of the Office of Air Quality Planning and Standards (OAQPS) to be the focal point of these activities. This Branch was formed from the criteria emission factor and inventory components of the Monitoring and Reports Branch of the TSD and the air toxics emission factor and inventory components of the Noncriteria Pollutant Programs Branch of the Air Quality Management Division. The new Branch is envisioned to continue the emphasis of its predecessors on technology transfer and emission estimation technology improvements.

Some new emission estimation products that have been released by this Branch include the revised XATEF and SPECIATE databases. XATEF presents more than 6000 air toxic emission factors for > 300 toxics and > 350 source categories. XATEF also presents a qualitative association of toxic air pollutant and source crosswalk (>15,000 pollutant/source associations). SPECIATE contains >300 volatile organic compounds and >300 particulate matter speciation profiles. SPECIATE and XATEF require an AT compatible machine that runs MS-DOS or PC-DOS 3.0 or later; at least 640 KB of free RAM; a fixed drive with at least 20 MB of storage; and a 5-1/4-inch external drive. The systems are each distributed on one high density (1.2 MB) 5-1/4-inch diskette

and user's manuals accompany the diskettes.

Other emission estimation products from the Emission Inventory Branch include an Emissions CD-ROM disk (availability expected summer 1991) and CHIEF, included as part of the OAQPS bulletin board system [(919) 541-5742 for 1200 and 2400 BAUD and (919) 541-5384 for 9600 BAUD]. The Emission CD will contain XATEF, SPECIATE, AFSEF (database containing criteria air pollutant emission factors), the Locating and Estimating Air Emissions from Sources of (Pollutant) series of reports, and AP-42. The Clearinghouse for Inventories and Emission Factors (CHIEF) is designed to provide access to several tools for estimating emissions of criteria and toxic air pollutants. CHIEF will serve as a central clearinghouse for the latest information on emission inventories and emission factors. The Emissions CD will be released in late spring of 1991.

For information on inventory procedures, call (919)-541-0875 and on emission factor information, call (919)-541-5522. These numbers are for criteria pollutants and toxics information, respectively. For further information on XATEF, SPECIATE, Emissions CD, or CHIEF, please contact Anne Pope, EPA, MD-15, Research Triangle Park, NC 27711, (919-541-5373 or FTS 629-5373).

The Superfund Innovative Technology Evaluation (SITE) Program

The Superfund Innovative Technology Evaluation (SITE) Program has as its major thrust the documentation of reliable performance, engineering, and cost information for innovative alternative technologies so that they are developed, demonstrated and made commercially available for the permanent cleanup of Superfund sites. The need for more long-term, permanent treatment solutions as alternatives to land disposal has been stressed by recent legislation such as the Hazardous and Solid Waste Amendments of the Resource Conservation and Recovery Act (RCRA) as well as the Superfund Amendments and Reauthorization Act (SARA) of 1986. The SITE Program resulted from enactment of SARA.

Now in its sixth year of demonstrating technologies applicable to Superfund sites, the Demonstration Program is working with

52 developers conducting 55 projects. Demonstration projects identify limitations of the technology, applicable wastes and waste media, potential operating problems, and the approximate cost of applying the technology.

Over the past year, four demonstrations were completed in the following technology areas:

1. Microfiltration Technology, DuPont & Company and the Oberlin Filter Company.
2. Excavation Techniques and Foam Suppression Methods, USEPA Region 9.
3. Integrated Vapor Extraction and Steam Vacuum Stripping, AWD Technologies, Inc.
4. Solidification/Stabilization with Silicate Compounds, Silicate Technology Corporation.

Upcoming demonstrations will include the Flame Reactor Process with Horsehead Resource Development Company, Inc., Extraction of Oily Waste by Dehydro-Tech Corporation, and Precipitation, Microfiltration and Sludge Dewatering with EPOC Water, Inc.

The Emerging Technologies Program, part of the overall SITE Program being implemented by the Risk Reduction Engineering Laboratory (RREL) in Cincinnati, provides a framework for encouraging and testing pilot-scale technologies that have been proven at bench-scale but are not ready for field evaluation. Under this program, EPA is able to provide funding to developers through a competitive cooperative agreement process to help support pilot-scale equipment development and testing. Cost sharing by EPA and the technology developer is an important aspect of the cooperative agreement which is intended to foster the commercialization of additional technologies having application to the cleanup of hazardous waste sites.

Of the 31 projects currently in the program, seven have completed their work efforts. Several of the developers are moving into the Demonstration Program to continue field evaluation of their technologies.

A complete description of the SITE Program and its projects is available in the "Technology Profiles," EPA/540/5-90/006, Nov. 1990, available from:

ORD Publications
USEPA
26 W. Martin Luther King Dr.
Cincinnati, OH 45268
Telephone: 513-569-7562

REQUEST FOR TECHNOLOGY TRANSFER MATERIAL

PROCESS DESIGN MANUALS

Phosphorus Removal (Sept. 1987)	625/1-87/001	<input type="checkbox"/>
Onsite Wastewater Treatment and Disposal Systems (Oct. 1980)	625/1-80/012	<input type="checkbox"/>
Land Treatment of Municipal Wastewater (Oct. 1981)	625/1-81/013	<input type="checkbox"/>
Supplement for Land Treatment of Municipal Wastewater (Oct. 1984)	625/1-81/013a	<input type="checkbox"/>
Dewatering Municipal Wastewater Sludges (Sept. 1987)	625/1-87/014	<input type="checkbox"/>
Land Application of Municipal Sludge (Oct. 1983)	625/1-83/016	<input type="checkbox"/>
Electrostatic Precipitator Operation and Maintenance (Sept. 1985)	625/1-85/017	<input type="checkbox"/>
Odor and Corrosion Control in Sanitary Sewerage Systems and Treatment Plants (Oct. 1985)	625/1-85/018	<input type="checkbox"/>
Municipal Wastewater Disinfection (Oct. 1986)	625/1-86/021	<input type="checkbox"/>
Constructed Wetlands and Aquatic Plant Systems for Municipal Wastewater Treatment (Oct. 1988)	625/1-88/022	<input type="checkbox"/>
Fine Pore Aeration Systems (Oct. 1989)	625/1-89/023	<input type="checkbox"/>

TECHNICAL CAPSULE REPORTS

Particulate Control by Fabric Filtration on Coal-Fired Industrial Boilers	625/2-79/021	<input type="checkbox"/>
Bahco Flue Gas Desulfurization and Particulate Removal System	625/2-79/022	<input type="checkbox"/>
First Progress Report: Physical Coal Cleaning Demonstration at Homer City, PA	625/2-79/023	<input type="checkbox"/>
Acoustic Monitoring to Determine the Integrity of Hazardous Waste Dams	625/2-79/024	<input type="checkbox"/>
Disposal of Flue Gas Desulfurization Wastes: Shawnee Field Evaluation	625/2-80/028	<input type="checkbox"/>
Adipic Acid-Enhanced Lime/Limestone Test Results at the EPA Alkali Scrubbing Test Facility	625/2-82/029	<input type="checkbox"/>
Benefits of Microprocessor Control of Curing Ovens for Solvent Based Coatings	625/2-84/031	<input type="checkbox"/>
•Radon-Resistant Construction Techniques for New Residential Construction: Technical Guidance	625/2-91/032	<input type="checkbox"/>

SEMINAR PUBLICATIONS

Permitting Hazardous Waste Incinerators	625/4-87/017	<input type="checkbox"/>
Meeting Hazardous Waste Requirements for Metal Finishers	625/4-87/018	<input type="checkbox"/>
Transport and Fate of Contaminants in the Subsurface	625/4-89/019	<input type="checkbox"/>
Corrective Actions - Technologies and Applications	625/4-89/020	<input type="checkbox"/>
Solvent Waste Reduction Alternatives	625/4-89/021	<input type="checkbox"/>
Requirements for Hazardous Waste Landfill Design, Construction and Closure	625/4-89/022	<input type="checkbox"/>
Technologies for Upgrading Existing or Designing New Drinking Water Treatment Facilities	625/4-89/023	<input type="checkbox"/>
Risk Assessment, Management and Communication of Drinking Water Contamination	625/4-89/024	<input type="checkbox"/>

BROCHURES

Nitrogen Oxide Control for Stationary Combustion Sources	625/5-86/020	<input type="checkbox"/>
Environmental Pollution Control Alternatives: Drinking Water Treatment for Small Communities	625/5-90/025	<input type="checkbox"/>

HANDBOOKS

Septage Treatment and Disposal (Oct. 1984)	625/6-84/009	<input type="checkbox"/>
Permit Writers Guide to Test Burn Data: Hazardous Waste Incineration (Sept. 1986)	625/6-86/012	<input type="checkbox"/>
•Ground Water (Revised 1990) Volume I	625/6-90/016a	<input type="checkbox"/>
Retrofitting POTWs for Phosphorus Removal in the Chesapeake Bay Drainage Area (Sept. 1987)	625/6-87/017	<input type="checkbox"/>
Guide to Technical Resources for the Design of Land Disposal Facilities (Dec. 1988)	625/6-88/018	<input type="checkbox"/>
Guidance on Setting Permit Conditions and Reporting Trial Burn Results (Jan. 1989)	625/6-89/019	<input type="checkbox"/>
Retrofitting POTWs (July 1989)	625/6-89/020	<input type="checkbox"/>
Hazardous Waste Incineration Measurement Guidance (June 1989)	625/6-89/021	<input type="checkbox"/>
Stabilization/Solidification of CERCLA and RCRA Wastes (July 1989)	625/6-89/022	<input type="checkbox"/>
Quality Assurance/Quality Control (QA/QC) Procedures for Hazardous Waste Incineration (Jan. 1990)	625/6-89/023	<input type="checkbox"/>
Operation and Maintenance of Hospital Waste Incinerators (Jan. 1990)	625/6-89/024	<input type="checkbox"/>
Assessing the Geochemical Fate of Deep-Well Injected Hazardous Waste (June 1990)		
Reference Guide	625/6-89/025a	<input type="checkbox"/>
Summaries of Recent Research	625/6-89/025b	<input type="checkbox"/>
•Optimizing Water Treatment Plant Performance Using the Composite Correction Program Approach	625/6-91/027	<input type="checkbox"/>

INDUSTRIAL ENVIRONMENTAL POLLUTION CONTROL MANUALS

Waste Minimization Opportunity Assessment (July 1988)	625/7-88/003	<input type="checkbox"/>
Guides to Pollution Prevention		
The Pesticide Formulating Industry	625/7-90/004	<input type="checkbox"/>

- The Paint Manufacturing Industry 625/7-90/005
- The Fabricate Metal Industry 625/7-90/006
- The Printed Circuit Board Manufacturing Industry 625/7-90/007
- The Commercial Printing Industry 625/7-90/008
- Selected Hospital Waste Streams 625/7-90/009
- Research and Educational Institutions 625/7-90/010
- Approaches for Remediation of Uncontrolled Wood Preserving Sites 625/7-90/011

SUMMARY REPORTS

- Sulfur Oxides Control Technology Series: FGD Dual Alkali Process 625/8-80/004
- Control and Treatment Technology for the Metal Finishing Industry Series: Ion Exchange 625/8-81/007
- Control and Treatment Technology for the Metal Finishing Industry Series: In-Plant Changes 625/8-82/008
- Sulfur Oxides Control Technology Series: FGD Spray Dryer Process 625/8-82/009
- Fine Pore (Fine Bubble) Aeration Systems 625/8-85/010
- Technology Assessment of Sequencing Batch Reactors 625/8-86/011
- Causes and Control of Activated Sludge Bulking and Foaming 625/8-87/012
- Biomonitoring to Achieve Control of Toxic Effluents 625/8-87/013
- Biomonitoring for Control of Toxic Effluent Discharges to the Marine Environment 625/8-89/015
- In-Vessel Composting of Municipal Wastewater Sludge 625/8-89/016
- Optimizing Water Treatment Plant Performance with the Composite Correction Program 625/8-90/017

EXECUTIVE BRIEFINGS

- Injection Well Mechanical Integrity 625/9-89/007
- Experiences in Incineration Applicable to Superfund Site Remediation 625/9-88/008
- Volumetric Tank Testing: An Overview 625/9-89/009

ENVIRONMENTAL REGULATIONS AND TECHNOLOGY PUBLICATIONS

- The Electroplating Industry 625/10-85/001
- Use and Disposal of Municipal Wastewater Sludge 625/10-84/003
- Fugitive VOC Emissions in the Synthetic Organic Chemicals Manufacturing Industry 625/10-84/004
- Control of Pathogens in Municipal Wastewater Sludge 625/10-89/006
- Autothermal Thermophilic Aerobic Digestion of Municipal Wastewater Sludge 625/10-90/007

EXPERT SYSTEM

- POTW Expert 625/11-90/001

OTHER

- ORD BBS User's Manual 600/M-90/012

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| State/Local Public Hlth. Agency B4 <input type="checkbox"/> | State/Local Air Pollution Agency B5 <input type="checkbox"/> | Local Fire Dept. B6 <input type="checkbox"/> |
| Regional Government B7 <input type="checkbox"/> | State Government B8 <input type="checkbox"/> | Media/Press B9 <input type="checkbox"/> |
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| Public Interest/Citizen's Group B16 <input type="checkbox"/> | Industry B17 <input type="checkbox"/> | College/University B18 <input type="checkbox"/> |
| Consulting Firm/Consultant B19 <input type="checkbox"/> | Environmental Planner B20 <input type="checkbox"/> | Legal Profession B21 <input type="checkbox"/> |
| Medical Profession B22 <input type="checkbox"/> | Private Citizen B23 <input type="checkbox"/> | Student B24 <input type="checkbox"/> |
| American Indian/Tribal Nation B25 <input type="checkbox"/> | Union/Labor Group B27 <input type="checkbox"/> | Library B28 <input type="checkbox"/> |
| Other B29 <input type="checkbox"/> | | |

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Forward to: CERL, Technology Transfer, U.S. Environmental Protection Agency, P.O. Box 19963, Cincinnati, OH 45219-0963.

ERRATA SHEET

EPA/625/10-90/007

Autothermal Thermophilic Aerobic Digestion of Municipal Wastewater Sludge

Page	Section	Correction
ii	Acknowledgements	Add to Acknowledgements The ATAD Technology Assessment conducted in the FRG and the development of the preliminary assessment report were conducted under Contract No. 68-03-3429 with James M. Montgomery, Consulting Engineers, Inc., of Pasadena, CA. Dr. Arthur J. Condren of James M. Montgomery was the project manager.
17	4.6.2	24.3 KWH to 24.3 KW
22	Figure 5-2	Units for Enteroviruses are [L ⁻¹]
34	6.4	Eliminate last word on page "Additional"
35	6.4	Eliminate first words "the proposed Class A Group 1 standards."
38	Table 7-1	Title should read "Summary of ATAD Installation and Design Conditions".
39	Table 7-2	Title should read "Summary of ATAD Operating Conditions."
50	Table 8-2	The words "March 1989" should be eliminated from the title.
65	References	References 47 and 48 are the same document.

ATTENTION

POTW Expert (Version 1.0) Users

A patch file (PES_REV1.ZIP) for POTW Expert has been placed on the ORD BBS for downloading. The file fixes several problems encountered during the first release of the software. Corrected problems include:

- Menu Display Problem for Users with Monochrome Monitors.
- System Breaks/Crashes when Trickling Filter Plant is Configured with Recirculation.
- Problems with Printer Controls (Note: POTW Expert Supports Epson printers, other printers may not be completely compatible).

Patch installation instructions are included in the README file contained in the zip file.

The ORD BBS telephone number is 513-569-7610 (FTS 684-7610).

Technology Transfer Meetings

Meeting	Title	Date(s)	Location	Contact	Phone No.
Workshop	Risk Assessment, Communication, and Management of Drinking Water Contamination	May 7-9, 1991 June 22-27, 1991	Alexandria, LA Portland, OR	Jim Smith	513-569-7355 FTS 684-7355
Conference	Control of Lead in Drinking Water	Sept. 24-26, 1991	Chicago, IL	Jim Smith	513-569-7355 FTS 684-7355
Seminar	Remedial Approaches for Sites with Contaminated Sediments	June 18-19, 1991 June 20-21, 1991 July 10-11, 1991 July 30-31, 1991 Aug. 1-2, 1991	Atlanta, GA Philadelphia, PA San Francisco, CA Chicago, IL Kansas City, MO	Barb Morris (registration) Ed Barth (content)	615-688-0998 513-569-7669 FTS 684-7669
Seminar	Sewer System Infrastructure Analysis and Rehabilitation	July 15-16, 1991 July 18-19, 1991 Aug. 5-6, 1991 Aug. 8-9, 1991 Aug. 19-20, 1991 Aug. 22-23, 1991 Nov. 18-19, 1991 Nov. 21-22, 1991	Baltimore, MD Chicago, IL San Diego, CA New Orleans, LA Seattle, WA San Francisco, CA Boston, MA Tampa, FL	Trisha Hasch (registration) Denis Lussier (content)	617-641-5321 513-569-7354 FTS 684-7354
Seminar	Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells	July 9-10, 1991 July 23-24, 1991 Aug. 6-7, 1991 Aug. 21-22, 1991 Sept. 12-13, 1991	Atlanta, GA Denver, CO Chicago, IL Worcester, MA Seattle, WA	Trisha Hasch (registration) Carol Grove (content)	617-641-5321 513-569-7362 FTS-684-7362

U.S. GOVERNMENT PRINTING OFFICE 1991 - 548-187 / 20597

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